

10/569076

1 IAPI2 PROSPECTUS 21/11/2006

SEQUENCE LISTING

<110> Medizinische Klinik und Poliklinik A des Universitätsklinikums Müns-
ter

<120> Fusion polypeptides for antivascular tumor therapy
<130> P 66774

<160> 31

<170> PatentIn version 3.1

<210> 1

<211> 263

<212> PRT

<213> Homo sapiens

<220>

<221> Amino acid sequence of humanem TF

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Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
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Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
 195 200 205
 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile Ile
 210 215 220
 Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala Ile
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 Ser Leu His Lys Cys Arg Lys Ala Gly Val Gly Gln Ser Trp Lys Glu
 245 250 255
 Asn Ser Pro Leu Asn Val Ser
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<210> 2
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<213> Homo sapiens
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Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
20 25 30
Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45
Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60
Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80
Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95
Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110
Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125
Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140
Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160
Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
 180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
 195 200 205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg
 210 215

<210> 3
 <211> 224
 <212> PRT
 <213> Artificial

<220>
 <221> Amino acid sequence of tTF-GRGDSP

<400> 3
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 20 25 30

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
 35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
 50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
 65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
 85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
 100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
 115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
 130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
 145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
 165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
 180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
 195 200 205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Arg Gly Asp Ser Asp
 210 215 220

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 <213> Artificial

<220>
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Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
 35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
 50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
 65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
 85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
 100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
 115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
 130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
 145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
 165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
 180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
 195 200 205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Asn Gly Arg Ala His
 210 215 220

Ala
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<210> 5
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 <212> PRT
 <213> Artificial

 <220>
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 Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
 20 25 30

 Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
 35 40 45

 Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
 50 55 60

 Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
 65 70 75 80

 Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
 85 90 95

 Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
 100 105 110

 Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
 115 120 125

 Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
 130 135 140

 Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
 145 150 155 160

 Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
 165 170 175

 Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
 180 185 190

 Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
 195 200 205

 Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Ala Leu Asn Gly Arg
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 Ser His Ala Gly
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<210> 6
<211> 225
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<213> Artificial

<220>
<221> Amino acid sequence of tTF-GCNGRCG

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Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
20 25 30

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
180 185 190

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
195 200 205

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Cys Asn Gly Arg Cys
210 215 220

Gly
225

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<210> 7
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<213> Artificial

<220>
<221> Amino acid sequence of tTF-GCNGRCVSGCAGRC

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1 5 10 15
Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
20 25 30
Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45
Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60
Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80
Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95
Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110
Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125
Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140
Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160
Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175
Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
180 185 190
Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
195 200 205
Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Cys Asn Gly Arg Cys
210 215 220
Val Ser Gly Cys Ala Gly Arg Cys
225 230

<210> 8
<211> 228
<212> PRT
<213> Artificial

<220>
<221> Amino acid sequence of tTF-GCVLNNGRMEC

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20 25 30
Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45
Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60
Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80
Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95
Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110
Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125
Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140
Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160
Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175
Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
180 185 190
Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
195 200 205
Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Gly Cys Val Leu Asn Gly
210 215 220
Arg Met Glu Cys
225

<210> 9
 <211> 654
 <212> DNA
 <213> Artificial

 <220>
 <221> Nucleotide sequence of tTF₁₋₂₁

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 aagtcaggag attggaaaag caaatgcctt tacacaacag acacagagtg tgacctcacc 180
 gacgagattg tgaaggatgt gaagcagacg tacttggcac gggtcttctc ctacccggca 240
 gggaaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc 300
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga 360
 acaaaaagtga atgtgaccgt agaagatgaa cggaacttag tcagaaggaa caacactttc 420
 ctaaggctcc gggatgttt tggcaaggac ttaatttata cacttttata ttggaaatct 480
 tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat 540
 aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctcccgAAC agttaaccgg 600
 aagagtacag acagccccgt agagtgtatg ggccaggaga aaggggaaatt caga 654

<210> 10
 <211> 672
 <212> DNA
 <213> Artificial

 <220>
 <221> Nucleotide sequence of tTF-GRGDSP

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 aagtcaggag attggaaaag caaatgcctt tacacaacag acacagagtg tgacctcacc 180
 gacgagattg tgaaggatgt gaagcagacg tacttggcac gggtcttctc ctacccggca 240
 gggaaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc 300
 acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga 360
 acaaaaagtga atgtgaccgt agaagatgaa cggaacttag tcagaaggaa caacactttc 420
 ctaaggctcc gggatgttt tggcaaggac ttaatttata cacttttata ttggaaatct 480

tcaagttcag	gaaagaaaac	agccaaaaca	aacactaatg	agttttgat	tgatgtggat	540
aaaggagaaa	actactgtt	cagtgtcaa	gcagtgattc	cctcccgAAC	agttaaccgg	600
aagagtacag	acagcccggt	agagtgtatg	ggccaggaga	aaggggaatt	cagaggaaga	660
ggtgattctc	ca					672

<210>	11					
<211>	675					
<212>	DNA					
<213>	Artificial					
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<221>	Nucleotide sequence of tTF-GNGRAHA					
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aagtcaggag	attggaaaag	caaatgcTTT	tacacaacag	acacagagtG	tgacctcacc	180
gacgagattg	tgaaggatgt	gaagcagacg	tacttggcac	gggtcttctc	ctacccggca	240
ggaaatgtgg	agagcaccgg	ttctgctggg	gagcctctgt	atgagaactc	cccagagttc	300
acaccttacc	tggagacaaa	cctcggacag	ccaacaattc	agagtttga	acaggtggga	360
acaaaagtga	atgtgaccgt	agaagatgaa	cggactttag	tcagaaggaa	caacactttc	420
ctaaggctcc	gggatgtttt	tggcaaggac	ttaatttata	cactttatta	ttggaaatct	480
tcaagttcag	gaaagaaaac	agccaaaaca	aacactaatg	agttttgat	tgatgtggat	540
aaaggagaaa	actactgtt	cagtgtcaa	gcagtgattc	cctcccgAAC	agttaaccgg	600
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ggaagagcac	atgca					675

<210>	12					
<211>	684					
<212>	DNA					
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<220>						
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aagtcaggag	attggaaaag	caaatgcTTT	tacacaacag	acacagagtG	tgacctcacc	180

gacgagattg tgaaggatgt gaagcagacg tacttggcac gggcttttc ctacccggca	240
ggaaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc	300
acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga	360
acaaaagtga atgtgaccgt agaagatgaa cgacttttag tcagaaggaa caacactttc	420
ctaaggctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct	480
tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat	540
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctccgaac agttaaccgg	600
aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt cagagggtgc	660
ttaaatggaa gatctcacgc tggt	684

<210> 13
<211> 675
<212> DNA
<213> Artificial

<220>
<221> Nucleotide sequence of tTF-GCNGRCG

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aagtcaaggag attggaaaag caaatgcctt tacacaacag acacagagtg tgacctcacc	180
gacgagattg tgaaggatgt gaagcagacg tacttggcac gggcttttc ctacccggca	240
ggaaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc	300
acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga	360
acaaaagtga atgtgaccgt agaagatgaa cgacttttag tcagaaggaa caacactttc	420
ctaaggctcc gggatgtttt tggcaaggac ttaatttata cactttatta ttggaaatct	480
tcaagttcag gaaagaaaac agccaaaaca aacactaatg agtttttgat tgatgtggat	540
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctccgaac agttaaccgg	600
aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt cagaggctgc	660
aacggtagat gtgg	675

<210> 14
 <211> 696
 <212> DNA
 <213> Artificial

<220>
 <221> Nucleotide sequence of tTF-GCNGRCVSGCAGRC

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aagtcaggag attggaaaag caaatgcctt tacacaacag acacagagtg tgacctcacc	180
gacgagattg tgaaggatgt gaagcagacg tacttggcac gggtcttctc ctacccggca	240
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acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga	360
acaaaagtga atgtgaccgt agaagatgaa cggactttag tcagaaggaa caacactttc	420
ctaaggctcc gggatgttt tggcaaggac ttaatttata cactttatta ttggaaatct	480
tcaagttcag gaaagaaaaac agccaaaaca aacactaatg agttttgat tgatgtggat	540
aaaggagaaa actactgttt cagtgttcaa gcagtgattc cctccgaac agttaaccgg	600
aagagtacag acagcccggt agagtgtatg ggccaggaga aaggggaatt cagaggttgt	660
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<210> 15
 <211> 684
 <212> DNA
 <213> Artificial

<220>
 <221> Nucleotide sequence of tTF-GCVLNGRMEC

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aagtcaggag attggaaaag caaatgcctt tacacaacag acacagagtg tgacctcacc	180
gacgagattg tgaaggatgt gaagcagacg tacttggcac gggtcttctc ctacccggca	240
ggaatgtgg agagcaccgg ttctgctggg gagcctctgt atgagaactc cccagagttc	300
acaccttacc tggagacaaa cctcggacag ccaacaattc agagtttga acaggtggga	360
acaaaagtga atgtgaccgt agaagatgaa cggactttag tcagaaggaa caacactttc	420
ctaaggctcc gggatgttt tggcaaggac ttaatttata cactttatta ttggaaatct	480

tcaagttcag	gaaagaaaaac	agccaaaaca	aacactaatg	agttttgat	tgatgtggat	540
aaaggagaaa	actactgttt	cagtgttcaa	gcagtgattc	cctcccgAAC	agttaaccgg	600
aagagtacag	acagccccgt	agagtgtatg	ggccaggaga	aaggggaatt	cagaggatgc	660
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<210>	16					
<211>	45					
<212>	DNA					
<213>	Artificial					
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<221>	5' Oligonucleotide primer for the preparation of tTF ₁₋₂₁₈					
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<210>	17					
<211>	40					
<212>	DNA					
<213>	Artificial					
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<221>	3' Oligonucleotide primer for the preparation of tTF ₁₋₂₁₈					
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<210>	18					
<211>	45					
<212>	DNA					
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<221>	5' Oligonucleotide primer for the preparation of tTF-GRGDSP					
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	catgccatgg	gatcaggcac	tacaaatact	gtggcagcat	ataat	45

<210>	19					
<211>	43					
<212>	DNA					
<213>	Artificial					
<220>						

<221> 3' Oligonucleotide primer for the preparation of tTF-GRGDSP

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<210> 20

<211> 45

<212> DNA

<213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GNGRAHA

<400> 20

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<210> 21

<211> 46

<212> DNA

<213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GNGRAHA

<400> 21

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<210> 22

<211> 45

<212> DNA

<213> Artificial

<220>

<221> 5' Oligonucleotide primer for the preparation of tTF-GCNGRCG

<400> 22

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<210> 23

<211> 46

<212> DNA

<213> Artificial

<220>

<221> 3' Oligonucleotide primer for the preparation of tTF-GCNGRCG

<400> 23

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<210> 24
<211> 45
<212> DNA
<213> Artificial

<220>
<221> 5' Oligonucleotide primer for the preparation of tTF-GCNGRCVSGCAGRC

<400> 24
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<210> 25
<211> 67
<212> DNA
<213> Artificial

<220>
<221> 3' Oligonucleotide primer for the preparation of tTF-GCNGRCVSGCAGRC

<400> 25
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attcccc          67

<210> 26
<211> 45
<212> DNA
<213> Artificial

<220>
<221> 5' Oligonucleotide primer for the preparation of tTF-GCVLNGRMEC

<400> 26
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<210> 27
<211> 55
<212> DNA
<213> Artificial

<220>
<221> 3' Oligonucleotide primer for the preparation of tTF-GCVLNGRMEC

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<210> 28
<211> 45
<212> DNA
<213> Artificial

<220>

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<221> 5' Oligonucleotide primer for the preparation of tTF-GALNGRSHAG

<400> 28
catgccatgg gatcaggcac tacaaatact gtggcagcat ataat 45

<210> 29
<211> 55
<212> DNA
<213> Artificial

<220>
<221> 3' Oligonucleotide primer for the preparation of tTF-GALNGRSHAG

<400> 29
cgggatccta ttaaccagcg tgagatcttc catttaaagc acctctgaat tcccc 55

<210> 30
<211> 45
<212> PRT
<213> Artificial

<220>
<221> Amino acid sequence of the affinity-tag

<400> 30
His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly
1 5 10 15

Met Lys Glu Thr Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser
20 25 30

Pro Asp Leu Gly Thr Asp Asp Asp Lys Ala Met Gly
35 40 45

<210> 31
<211> 269
<212> PRT
<213> Artificial

<220>
<221> Amino acid sequence of tTF-GRGDSP having an N-terminal affinity-tag

<400> 31
His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly
1 5 10 15

Met Lys Glu Thr Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser
20 25 30

Pro Asp Leu Gly Thr Asp Asp Asp Lys Ala Met Gly Ser Gly Thr
35 40 45

Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser Thr Asn Phe
 50 55 60

Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln Val Tyr Thr
 65 70 75 80

Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys Cys Phe Tyr
 85 90 95

Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val Lys Asp Val
 100 105 110

Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala Gly Asn Val
 115 120 125

Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn Ser Pro Glu
 130 135 140

Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr Ile Gln Ser
 145 150 155 160

Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu Asp Glu Arg
 165 170 175

Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg Asp Val Phe
 180 185 190

Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser Ser Ser Ser
 195 200 205

Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu Ile Asp Val
 210 215 220

Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val Ile Pro Ser
 225 230 235 240

Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu Cys Met Gly
 245 250 255

Gln Glu Lys Gly Glu Phe Arg Gly Arg Gly Asp Ser Asp
 260 265

<210> 32

<211> 270

<212> PRT

<213> Artificial

<220>

<221> Amino acid sequence of tTF-GNGRAHA having an N-terminal affinity-tag

<400> 32

His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser Gly
 1 5 10 15

Met Lys Glu Thr Ala Ala Ala Lys Phe Glu Arg Gln His Met Asp Ser
 20 25 30

Pro Asp Leu Gly Thr Asp Asp Asp Lys Ala Met Gly Ser Gly Thr
 35 40 45

Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser Thr Asn Phe
 50 55 60

Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln Val Tyr Thr
 65 70 75 80

Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys Cys Phe Tyr
 85 90 95

Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val Lys Asp Val
 100 105 110

Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala Gly Asn Val
 115 120 125

Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn Ser Pro Glu
 130 135 140

Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr Ile Gln Ser
 145 150 155 160

Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu Asp Glu Arg
 165 170 175

Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg Asp Val Phe
 180 185 190

Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser Ser Ser Ser
 195 200 205

Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu Ile Asp Val
 210 215 220

Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val Ile Pro Ser
 225 230 235 240

Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu Cys Met Gly
 245 250 255

Gln Glu Lys Gly Glu Phe Arg Gly Asn Gly Arg Ala His Ala
 260 265 270